Rationale for Changing Proton Pump Inhibitor Therapy: An Intraindividual Analysis of Gastric Acid Suppression Following Treatment With Different Proton Pump Inhibitors

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CONCLUSIONS

- **Esomeprazole 40 mg once daily provides the most effective gastric acid suppression for the majority of individual patients.**
- **Esomeprazole may be a rational choice for a change in therapy from other proton pump inhibitors to improve clinical efficacy.**

1. BACKGROUND

- Esomeprazole provides more effective intragastric acid control at steady state than standard doses of all other proton pump inhibitors.[1]
- Patients who have an inadequate clinical response to one proton pump inhibitor may be switched to a different proton pump inhibitor, but there are few data on individual response to proton pump inhibitors to rationalize this approach.[2]
- Most comparative pharmacodynamic data are reported as means rather than intraindividual responses.

2. OBJECTIVE

- To determine if there are clinically relevant intraindividual pharmacodynamic differences that warrant switching from one proton pump inhibitor to another to thereby improve efficacy.

3. METHODS

- An open-label, comparative 5-way crossover study was conducted during which patients received esomeprazole 40 mg, lansoprazole 30 mg, omeprazole 20 mg, pantoprazole 40 mg, or rabeprazole 20 mg orally, once daily on 5 consecutive mornings, 30 minutes prior to a standardized breakfast. Each treatment period was separated by a 10- to 17-day washout period during which no proton pump inhibitor was taken.[1]
- Patients were randomly assigned to receive the comparators in one of five sequences. Patients must have completed all five treatment periods to have been considered evaluable.
- Eligible participants included men and women aged 18 to 60 years who experienced heartburn for an average of at least 2 days per month during the 2 months prior to screening.
- The percentage of the 24-hour period that intragastric pH was >4.0 on day 5 was calculated for each patient to determine the response of that individual to each of the 5 proton pump inhibitors.
- The percentage of patients with a higher percentage of time with pH >4 was calculated for each paired comparison of proton pump inhibitors.
- For patients who improved, the mean increase in number of hours that pH was >4.0 was determined for each superior comparator.
- The data presented were obtained as part of a retrospective analysis.

4. RESULTS

- Baseline demographic and clinical characteristics of the 34 evaluable patients are summarized in Table 1.

Table 1. Baseline Demographics and Clinical Characteristics (Evaluable Cohort; N = 34)

Female gender, n (%)	26	(76.5)
Age, y, mean (SD)	44.1	(11)
Caucasian race, n (%)	31	(91.2)
Height, cm, mean (SD)	167.6	(8.5)
Weight, kg, mean (SD)	83.2	(18.1)
Body mass index, kg/m², mean (SD)	29.4	(5.1)
Heartburn ≥3 times/wk, n (%)	23	(67.6)

SD = standard deviation

- Treatment with esomeprazole resulted in a greater proportion of patients having a higher percentage of time with intragastric pH >4.0 relative to lansoprazole, omeprazole, pantoprazole or rabeprazole (Figure 1).
- Changing therapy from one proton pump inhibitor to another may also offer improved clinical efficacy for selected patients.

Patients With Improved Antisecretory Response

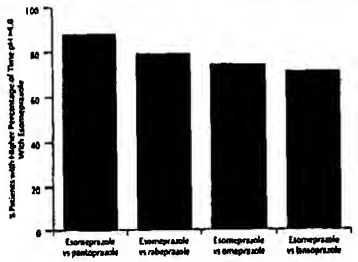

Figure 1. Percent of patients with a higher percentage of time with pH >4.0 with esomeprazole versus other proton pump inhibitors (N = 34).

Number of Hours Gained With pH >4.0

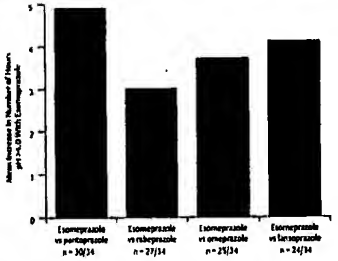

Figure 2. Mean increase in number of hours with pH >4.0 with esomeprazole versus other proton pump inhibitors.

- The mean increase in number of hours with pH >4.0 versus other proton pump inhibitors is shown in Figure 2. Esomeprazole provided a mean increase of 3 or more hours with intragastric pH >4.0 versus all comparators.
- The percent of patients experiencing a greater proportion of time with a pH >4.0 for each pair of comparator agents is illustrated in Table 2.
- The mean increase in the number of hours with intragastric pH >4.0 for each pair of comparator agents is listed in Table 2.

Table 2. Percent of Patients and Mean Increase in Time pH >4.0

Comparison (N = 34)	Superior comparator (% of patients with a higher percentage of time pH >4.0)	Mean increase in number of hours with pH >4.0 (n)
Esomeprazole vs pantoprazole	Esomeprazole (88)	4.9 (30)
Esomeprazole vs rabeprazole	Esomeprazole (79)	3.0 (27)
Esomeprazole vs omeprazole	Esomeprazole (74)	3.7 (25)
Esomeprazole vs lansoprazole	Esomeprazole (71)	4.1 (24)
Rabeprazole vs pantoprazole	Rabeprazole (82)	3.3 (28)
Rabeprazole vs omeprazole	Rabeprazole (56)	2.3 (19)
Rabeprazole vs lansoprazole	Neither (50)	N/A
Omeprazole vs pantoprazole	Omeprazole (71)	3.3 (24)
Omeprazole vs lansoprazole	Omeprazole (53)	2.2 (18)
Lansoprazole vs pantoprazole	Lansoprazole (79)	2.8 (27)

5. REFERENCE

1. Miner PB, Katz PO, Chen Y, Sostek, M. Esomeprazole 40 mg provides more effective intragastric acid suppression at steady state than standard doses of other proton pump inhibitors. *Gastroenterology*. 2003;124(3):A219.
2. Wilder-Smith C, Schindler D, Claar-Nilsson C, Lundin C, Rohss K. Is switching between proton pump inhibitors (PPIs) reasonable? An intraindividual analysis of cross-sensitivity to PPIs. *Gut*. 2002; 51:A170.

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